

REMARKS

Claims 1 through 12, 14 through 19 and new Claims 20 through 22 are pending in the application.

Claim 1 has been amended to reflect advantageous embodiments in which the saturated organic compound bearing a functional group contains at least one group selected from =O, -OH, -C(O)OH, -C(O)H, -COOR, -C-O-C- and -C-O-R-, where R is an organic group. Support for this amendment can be found in the Application-as-filed, for example in Claim 2 as-filed.

Claim 1 has also been amended to reflect advantageous embodiments in which the ion exchanger has a water content of less than 10 ppm. Support for this amendment can be found in the Application-as-filed, for example on Page 10, lines 1 through 3.

Claim 2 has been canceled, as its subject matter has been incorporated into Claim 1.

Claim 19 has likewise been canceled, as its subject matter has been incorporated into Claim 1.

Claims 20 through 22 have been added to complete the record for examination and highlight advantageous embodiments of the invention.

Claim 20 is directed to advantageous embodiments in which the silver-ion-loaded ion exchanger has a particle size of from 20 to 50 mesh. Support for Claim 20 can be found in the Application-as-filed, for example on Page 8, lines 17 through 19.

Claim 21 is directed to advantageous embodiments in which the mixture to be separated/enriched is a mixture of ethers and esters, a mixture of a homologous series, a mixture

of positional isomers or a mixture of regioisomers. Support for Claim 21 can be found in the Application-as-filed, for example on Page 6, lines 7 through 12.

Claim 22 is directed to advantageous embodiments in which the mixture to be separated/enriched is a mixture of esters bound to differing fatty acids. Support for Claim 22 can be found in the Application-as-filed, for example on Page 6, lines 7 through 12.

Reexamination and reconsideration of this application, withdrawal of all rejections, and formal notification of the allowability of the pending claims are earnestly solicited in light of the remarks which follow.

35 USC § 112 Rejection

Claims 1, 3, 9, 10 through 12, 14 through 17 and 19 stand rejected, presumably over the recitation "saturated group." Solely to advance prosecution of the case and without addressing the merits of the rejection, Claim 1 has been amended to incorporate the subject matter of Claim 2.

Accordingly, Applicants respectfully request withdrawal of this rejection.

The Claimed Invention is Patentable

in light of the Art of Record

Claims 1 through 12 and 14 through 19 stand rejected over United States Patent No. 3,922,217 to Cohen et al. (US 217).

It may be useful to consider the invention before addressing the merits of the rejection.

The separation of organic compounds from larger mixtures of substances is still, in many sectors, a problem which has not been solved satisfactorily. Conventional separation techniques typically proceed by attracting a given component within a mixture onto a particular substrate, for example by electrostatic attraction and the like. The separation of mixtures whose components do not significantly differ from each other is particularly problematic, due to the similarity in component properties. Exemplary mixtures of such similar components include mixtures of ethers and esters, mixtures of a homologous series (for example esters which have bound differing fatty acids, for example C18 or C16), positional isomers or regioisomers. The separation of mixtures of fatty acids is particularly problematic.

Surprisingly, Applicants have found that silver-loaded ion exchange resins can be used to perform highly sensitive separations. Applicants have more particularly found that silver-loaded ion exchange resins may be used to separate a saturated organic compounds having at least one functional group from a mixture which comprises the saturated organic compound and other organic compounds.

In advantageous embodiments, the saturated organic compound includes a functional group selected from =O, -OH, -C(O)OH, -C(O)H, -COOR, -C-O-C- and -C-O-R-, as recited in the claims as-amended.

In especially beneficial embodiments, the ion exchanger has a water content of less than 10 ppm, as further reflected in the claims as-amended.

US 217 does not teach or suggest the claimed invention.

US 217 is generically directed to the removal of “polar compounds” from a mixture containing further “hydrocarbons” using water-containing ion exchange resins containing a minimum of 1 wt % water. (Col. 1, lines 6 – 8 and 52 – 55). The ion exchange resins of US 217 may contain up to 30 wt % water. (Col. 1, line 56). US 217 discusses the elevated water content

of its ion exchange resins on multiple occasions. (Col. 1, lines 57 – 60; Col. 1, lines 60 – 66 and Col. 3, lines 50 - 53). US 217 further refers to ion exchange resins containing 0.2 wt% (i.e. 2000 ppm) as “dry resin.” (Col. 6, line 45). Working Examples 3 and 4 use ion exchange resins containing 13.6 and 14 percent water, respectively. (Col. 6, line 65 – Col. 7, line 19). US 217 provides an extensive laundry list of suitable ion exchange resins, including anionic resins. (Col. 2, lines 1 – 48). US 217 is silent as to the particle size of its resins.

US 217 indicates that suitable “polar compounds” include any of a generic list of small molecules. (Col. 4, lines 20 – 25). The working examples disclose dimethylformamide, which is separated from a mixture containing either paraffin, naphthalene and benzene or hexane, heptane and benzene. (Col. 5, lines 25 – 62).

Applicants respectfully submit that US 217’s generic disclosure does not teach or suggest the recited separation of saturated organic compounds having a functional group which contains at least one group which is selected from =O, -OH, -C(O)OH, -C(O)H, -COOR, -C-O-C- and -C-O-R- using silver-ion-loaded exchangers, as recited in Claim 1 as-amended.

And US 217, requiring a minimum of 1 wt% water, can not teach or suggest the recited separations in which the ion exchanger has a water content of less than 10 ppm, as further recited in Claim 1 as-amended. Applicants respectfully submit that to modify US 217 so as to avoid its required elevated amounts of water within the ion exchange resin would render it unfit for its intended purpose and/or change the principle of operation for US 217. MPEP 2143.01 (citing *In re Gordon*, 221 USPQ 1125 (Fed. Cir. 1984) and *In re Ratti*, 123 USPQ 349 (CCPA 1959), respectively).

Nor does US 217 teach or suggest the recited separation of saturated compounds in which the saturated organic compound is less sterically hindered than the other organic compounds within a silver-ion-loaded ion exchanger, as recited in Claim 17.

US 217, silent as to resin particle size, likewise fails to teach or suggest advantageous inventive embodiments having an ion exchanger particle size of from 20 to 50 mesh, as recited in Claim 20.

US 217, teaching the separation of formamide from paraffinic hydrocarbon and the like, most certainly does not teach or suggest advantageous embodiments in which the mixture to be separated/enriched is a mixture of ethers and esters, a mixture of a homologous series, a mixture of positional isomers or a mixture of regioisomers, as recited in Claim 21.

US 217 thus can not teach or suggest such advantageous embodiments in which the mixture to be separated/enriched is a mixture of esters bound to differing fatty acids, as recited in Claim 22.

Applicants further make of record that, in contrast to the urgings of the outstanding Office Action, there would have been no motivation to have looked to US 217 as there would have been no expectation of success. More specifically, US 217 clearly requires water within its ion exchange resins. In fact, US 217 goes so far as to refer to the presence of such water as "remarkable". (Col. 1, lines 52 – 56). Thus there would have been no expectation of success in separations performed using an ion exchanger having a water content of less than 10 ppm, as recited in the claims as-amended.

Accordingly, Applicants respectfully submit that Claims 1, 3 through 12, 14 through 18 and 20 through 22 are patentable in light of US 217.

CONCLUSION

It is respectfully submitted that Applicants have made a significant and important contribution to the art, which is neither disclosed nor suggested in the art. It is believed that all of pending Claims 1, 3 through 12, 14 through 18 and 20 through 22 are now in condition for

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immediate allowance. It is requested that the Examiner telephone the undersigned if any questions remain to expedite examination of this application.

It is not believed that extensions of time or fees are required, beyond those which may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time and/or fees are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required is hereby authorized to be charged to Deposit Account No. 50-2193.

Respectfully submitted,

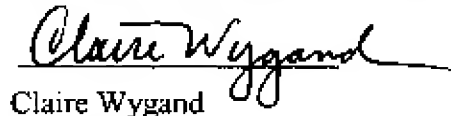


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